alous origin at an outside institution and has been lost to F/U. All pts s/p unroofing are asymptomatic with patent coronary flow by Doppler and normal/improved LV function at F/U; aortic insufficiency is mild in 1 (with bicuspid Ao valve), trivial in 1, and none in 3 pts. *Conclusion*: AOCA is frequently characterized by an intramural course which can be prospectively identified by TTE. The intramural form of AOCA can be reliably repaired by unroofing the intramural segment without bypass grafting. We speculate that early TTE identification and aggressive surgical intervention can be life-saving in pts with this rare anomaly.

1167-99 Noninvasive Method for Quantification of Aortopulmonary Collateral Flow In Bi-Directional Glenn Shunts

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Background: Aortopulmonary collateral flow (APCF) is a significant risk factor for the success of Fontan Surgery. It is estimated qualitatively on the pre-Fontan cardiac catheterization (CC). No method to quantify the APCF exists. This study assesses feasibility of quantitative assessment of APCF using radionuclide technique in patients (pts) with a Bidirectional Glenn Shunt(BDG).
Methods: We prospectively studied 20 pts with a BDG shunt who were undergoing a pre-Fontan evaluation by CC. Pts with non-BDG sources of pulmonary blood flow, were excluded. Tc-99m MAA (albumin aggregates) was injected into a lower extremity vein. Injected activity would return via the inferior vena cava into the heart, and then to the systemic circulation. If any APCs exist, it would be reflected by the counts in the lungs. The ratio of activity in the lungs to the total body activity would signify %APCF. Two independent blinded observers assessed APCF on angiogram qualitatively and graded the amount of APCF as none, small, moderate or large. The quantitative data obtained by the scan was compared to the qualitative assessment.
Results: The %APCF obtained by the scan ranged from a minimum of 8% to a maximum of 54%. In one pt with minimal (8%) APCF and the one with large (54%) APCF, there was excellent correlation with qualitative assessment by both the reviewers. There were 13 pts with %APCF ranging from 19% to 39% (median 31%).This correlated with a median grade of moderate APCF by qualitative assessment.There was significant inter-observer variability in the qualitative assessment of the group with shunt between 19%-39%, r=0.4, p<0.01.There were 6 pts with >40% APCF, 4 had moderate to large and 2 had small APCF by qualitative assessment, (r=0.37).
Conclusions: Tc-99m MAA scan is a noninvasive method that can quantify APCF. This techchnique complements the qualitative assessment of APCF and thereby can possibly aid risk stratification for the Fontan surgery.

1167-100 The Diagnostic Yield of Echocardiographic Testing In Pediatric Patients With Chest Pain

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Background: Chest pain is an unusual manifestation of cardiac disease in the pediatric population, although it is a frequent cause for referral to the pediatric cardiologist. The primary care physician and pediatric cardiologist frequently obtain an echo in the evaluation of these patients. However, the diagnostic yield of this approach is unknown.
Methods: Our echo laboratory database was queried for all patients undergoing an echo for the complaint of chest pain from 7/1/95 to 9/1/01. Patients with known congenital or acquired heart disease were excluded from the study. Ordering physician, reason for study, echo diagnosis and patient demographics were reviewed.
Results: A total of 407 studies in 393 patients (55% male; 45% female) were identified. The patients ranged in age from 4-21 years old (mean 13 years). The 407 studies represented 1.4% of the total echo lab volume. The ordering physician was a pediatric cardiologist in 99/407 studies (24%). Although chest pain was the primary reason for echo evaluation, additional reasons based on clinical findings were specified in 49% (suspected mitral valve prolapse (MVP) (15%), abnormal ECG (5.4%), association with exercise (3.4%), syncope (3.4%), shortness of breath (3.7%), suspected cardiomyopathy (3.7%), palpitations (3.2%), suspected pericarditis (3.2%), suspected valver disease (2%), and other (6.1%)). Pathology was identified in only 39 patients (10%) and consisted of MVP (2%), patent foramen ovale (2%), left ventricular hypertrophy (1%), atrial septal defect (1%), bicuspid aortic valve (0.7%), patent ductus arteriosus (0.2%), pericardial effusion (0.2%) and other (2%). No patients were found to have hypertrophic cardiomyopathy or coronary artery anomalies.
Conclusions: Physicians infrequently suspect significant pathology but obtain echos to detect occult disease not apparent by history or physical examination. However, the diagnostic yield of an echo in the evaluation of pediatric chest pain is low. Patients with no known preceding cardiac history may benefit from a cardiac consultation to avoid unnecessary echos. These data may be useful for the development of cost-effective strategies in the evaluation of pediatric chest pain.

1167-101 MRI Evaluation of Cardiac Tumor Characteristics in Infants and Children

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Background: Most childhood cardiac tumors are diagnosed by echocardiography but specific tumor type and extent may not be completely delineated. This study investigates the role of MRI tissue characterization in childhood cardiac tumors.
Methods: MRI, echo, cath, surgical, clinical, and pathology data of 10 pts (age 1 day-11.4 yrs) evaluated by MRI for cardiac tumors were reviewed. T1 standard spin echo (SSE) or fast spin echo (FSE) with double inversion recovery (DIR) were the primary MRI sequences used to assess tumor morphology (n=10). T2 FSE was used for distinguishing vascular or cystic tumors (n=5), and post-gadolinium FSE with DIR for assessing tumor vascularity (n=4). Cine MRI with/without tissue tagging was used for evaluating myocardial motion (n=8).
Results: T1 SSE and FSE with DIR clearly identified tumor location and borders in all pts. MRI correctly predicted tumor type in all 7 pts who had a histologic diagnosis available (table).

Tumor	N	T1 weighted*	T2 weighted*	Post-Gd T1vascularity
Fibroma	2	iso-hypointense	iso-hypointense	decreased
Hemangioma	2	isointense	hyperintense	increased
Rhabdomyoma	1	iso-hypointense	iso-hypointense	decreased
Purkinje cell tumor	1	hyperintense	hypointense	not performed
Pericardial teratoma	1	hypointense	not performed	decreased

* compared to adjacent uninvolved myocardium

Of the 3 pts without histology, 2 presented with arrhythmia and were found by MRI to have fatty tumors (1 septal, 1 right AV groove) and 1 pt had multiple rhabdomyomas. MRI was followed by tumor resection in 5 pts, open biopsy in 2, antiarrhythmic medications in 1, and no treatment in 2.
Conclusions: MRI clearly identifies tumor location and borders, and provides additional information on tumor tissue characteristics that, in this cohort, proved helpful in clinical management.

1167-102 Three-Dimensional Free-Breathing Pediatric Cardiovascular Magnetic Resonance Imaging With Real-Time Navigator Respiratory Synchronization

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Background: Respiratory motion causes many artifacts in cardiovascular magnetic resonance (CMR) studies performed in free-breathing pediatric patients. Breath-holding CMR is impractical in many of these patients. A real-time navigator (NAV) technique, which continuously tracks the diaphragm and synchronizes data acquisition with the respiratory cycle, is an alternative to breath-holding and has been demonstrated to have utility in adult patients. Purpose: To evaluate a real-time NAV method for CMR in pediatric patients. Methods: Thirty free-breathing pediatric patients with known or suspected cardiovascular disease were evaluated with three-dimensional turbo field echo CMR acquisitions enhanced by real-time motion-corrected NAV gating. Acquisitions were synchronized with the cardiac cycle by a vectorcardiographic technique. Data was obtained in late diastole by adjusting the acquisition delay appropriately for heart rate. The NAV gating window was optimized for patient size. Twelve patients were sedated. Patients included two with pulmonary atresia, one with transposition of the great arteries, two with tetralogy of Fallot, three with Kawasaki disease, two with secundum atrial septal defects, three with anomalous pulmonary veins, one with supravalvar aortic stenosis, two with coarctation and twelve with exercise induced syncope/arrhythmia. Results: Good quality images were obtained in all patients. The NAV technique provided superior delineation of coronary artery branching in comparison to CMR acquisitions obtained without respiratory synchronization. Additionally, images of the proximal pulmonary arteries, pulmonary veins, and inferior atrial septum acquired with the NAV compared favorably to images made without respiratory synchronization. The vectorcardiographic synchronization of the cardiac cycle substantially assisted in eliminating erroneous T-wave triggering. Conclusions: CMR acquisition with the real-time NAV technique is a promising method in free-breathing pediatric patients. The use of this method is not limited to coronary artery imaging. Indeed, it is helpful for imaging a variety of different cardiovascular structures.

POSTER SESSION

1190 Advances in Pediatric Cardiac Catheterization

Tuesday, March 19, 2002, Noon-2:00 p.m.
Georgia World Congress Center, Hall G
Presentation Hour: 1:00 p.m.-2:00 p.m.

1190-97 Endovascular Stent Implantation In Patients With Stenotic Aorto-Arteriopathies: Early and Medium-Term Results

Ernest S. Siwik, James E. Lock, Stanton B. Perry, *Rainbow Babies and Children's Hospital/Case Western Reserve University, Cleveland, Ohio, Children's Hospital/Harvard University, Boston, Massachusetts.*

Background: Data regarding outcome of stent implantation for stenotic aorto-arteriopathy (SAA) is incomplete. Given the vessel wall abnormalities, it is uncertain whether response to stent implantation differs from more common indications such as isolated aortic coarctation. We report on the results for patients with SAA who underwent arterial stent implant during 1989-2000. **Methods:** Procedural indications, short- and medium-term results, and complications for patients with SAA were reviewed. **Results:** Nine patients, at a median age of 14 years of age, underwent 11 procedures. A total of 21 stents were implanted in the thoracic aorta, abdominal aorta, and brachiocephalic vessels. Five patients had diffuse arterial disease, three patients had findings consistent with middle aortic syndrome, and one patient had both thoracic and abdominal coarctation. Associated diagnoses included Williams syndrome (2), neurofibromatosis (2), Takayasu's (1), and congenital rubella (1). Median gradient prior to intervention was 60 mm